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REMARKS

Claims 1-38 are pending in the present application Claims 1, 16, 29, 32, and 36 have been amended, leaving Claims 1 - 38 for consideration upon entry of the present Amendment.

Claim rejections under 35 U.S.C. § 102

Claims 1, 4, 10, 11, 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,910,962 to Vanzo. Applicants respectfully traverse this rejection.

Independent Claim 1 is directed to a method for generating electricity comprising, *inter alia*, "removing liquid hydrogen from a first location in the storage tank", "capturing boiled off hydrogen gas from a second location in the storage tank", "storing the hydrogen gas" and "fueling a hydrogen conversion device with the stored hydrogen gas."

Vanzo teaches of a system for generating electricity in a first location, converting the electricity into liquid hydrogen which is transported to a second location where the liquid hydrogen converted back into electricity. The system taught by Vanzo includes a storage tank 26 (railroad car), which holds the liquid hydrogen. The liquid hydrogen is withdrawn from the tank 26 through a buffer tank 26D and into a vaporizer 46. In the vaporizer, the liquid hydrogen is converted into vapor which is used to fuel a boiler.

To anticipate a claim, a reference must disclose and every element of the claim, *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Applicants respectfully submit that independent Claim 1, as amended is not anticipated, nor is obvious in view of Vanzo. In Claim 1, Applicants claim requires that liquid hydrogen be removed from a first location in the storage tank and that boiled off hydrogen gas is captured from a second location in the same storage tank.

In contrast to Applicant's Claim 1, Vanzo teaches of a system having a storage tank which receives liquid hydrogen from a first inlet and withdraws liquid hydrogen through a second outlet. While the Application respectfully disagrees with the Examiner's assertion that the vaporizer 46 is a "storage tank" within the meaning of Claim 1, even if this view were accepted, the vaporizer receives liquid hydrogen from a first location and withdraws hydrogen vapor from a second location. Applicant's Claim 1 requires that liquid hydrogen be removed from a first location and the hydrogen gas be captured from a second location in the storage tank. Vanzo does not teach any such step. As such, Applicant respectfully submits that the anticipation rejection is improper. Therefore, Applicants submit that Claim 1 patentably defines over Vanzo. Moreover, Claims 4 and 10 also patentably define over Vanzo as depending from independent Claim 1. Accordingly, reconsideration and allowance of claims 1, 4, and 10 are respectfully requested.

For the same reasons set forth above with respect to Claim 1, Applicant respectfully submits that the rejections of independent Claims 11 and 25 as amended are improper. Therefore, Applicants submit that independent Claims 11 and 25 are patentably defined over Vanzo. Moreover, Claims 12-15 and 26-28 which depend either directly or indirectly from independent Claims 11 and 25 also patentably define over Vanzo. Accordingly, reconsideration and allowance of claims 11 and 25 are respectfully requested.

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Claim rejections under 35 U.S.C. § 103(a)

Claims 2, 12, 26 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 5,375,580 to Stolz et al.

Stolz et al. teaches of a locomotive powered by refrigerated liquefied methane ("RLM"). The system taught by Stolz includes a number of heat exchanger loops to allow selective heating and/or cooling of different components such as the compressed intake air and the fuel gas vaporizer. RLM from tank 18 passes through the vaporizer 6 in preparation for use as a fuel in the engine 2. To vaporize the RLM, Stolz utilized a heat exchange fluid (Column 5, lines 20-53) to transport heat from the intake combustion air to the vaporizer 6. The system further includes a storage tank 11 for the heat exchange fluid, which is preferably a ethylene-glycol-water solution.

Claim 2 which depends indirectly from independent Claim 1 and incorporates all of the limitations of Claim 1 requires that liquid hydrogen be removed from a first location in a storage tank, boiled off hydrogen gas be captured from a second location in a storage tank, stored and used to fuel a hydrogen conversion device that generates electricity. Claim 2 adds a further requirement that the hydrogen conversion device be an internal combustion engine. For reasons set forth above with respect to Claim 1, Applicant respectfully submits that neither Vanzo nor Stolz et al. teach or suggest the method for generating electricity as claimed in Claim 2. Applicant respectfully submits that, at best, if Vanzo and Stolz et al. were combined, the internal combustion engine taught by Stolz et al. would be fueled by liquid hydrogen removed from a storage tank and vaporized into gas as taught by Vanzo. Therefore, applicants submit that Claim 2 patentably defines over Vanzo in view of Stolz et al. Accordingly, reconsideration and allowance of Claim 2 is respectfully requested.

For the same reasons set forth above with respect to Claim 2, Applicant respectfully submits that the rejections of Claims 12, 26, and 27 are also improper. Therefore, applicants submit that Claims 12, 26, and 27 are patentably defined over Vanzo in view of Stolz et al.. Accordingly, reconsideration and allowance of Claims 12, 26 and 27 is respectfully requested.

Claims 3, 5-6, and 14-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 6,543,229 to Johansson.

Claims 3 and 5-6 which depend directly or indirectly from independent Claim 1 and incorporate all of the limitations of Claim 1 which requires that liquid hydrogen be removed from a first location in a storage tank, boiled off hydrogen gas be captured from a second location in a storage tank, stored and used to fuel a hydrogen conversion device that generates electricity. Claims 3 and 5-6 add a further requirement that waste heat be collected (Claim 3, 6) and the hydrogen conversion device be a stirling engine (Claim 5). For reasons set forth above with respect to Claim 1, Applicant respectfully submits that neither Vanzo nor Johansson teach or suggest the method for generating electricity as claimed in Claims 3 and 5-6. Applicant respectfully submits that, at best, if Vanzo and Johansson were combined, the Stirling engine taught by Johansson would be fueled by liquid hydrogen removed from a storage tank and vaporized into gas as taught by Vanzo. Therefore, applicants submit that Claim 3 and 5-6 patentably defines over Vanzo in view

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of Johansson. Accordingly, reconsideration and allowance of Claim 3 and 5-6 is respectfully requested.

For the same reasons set forth above with respect to Claim 3 and 5-6, Applicant respectfully submits that the rejections of Claims 14 and 15 are also improper. Therefore, applicants submit that Claims 14 and 15 are patentably defined over Vanzo in view of Johansson. Accordingly, reconsideration and allowance of Claims 14 and 15 is respectfully requested.

Claims 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo.

Claims 7-9 which depend directly or indirectly from independent Claim 1 and incorporate all of the limitations of Claim 1 which requires that liquid hydrogen be removed from a first location in a storage tank, boiled off hydrogen gas be captured from a second location in a storage tank, stored and used to fuel a hydrogen conversion device that generates electricity. Claims 7-9 add a further limitation on the flow rates of the hydrogen gas. For reasons set forth above with respect to Claim 1, Applicant respectfully submits that Vanzo does not teach or suggest the method for generating electricity as claimed in Claims 7-9. Therefore, applicants submit that Claims 7-9 patentably define over Vanzo. Accordingly, reconsideration and allowance of Claims 7-9 is respectfully requested.

Claims 16-17, 22, 29, 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 4,253,428 to Billings et al.

Independent Claim 16 as amended requires a liquid hydrogen removal valve and a pressure relief valve distal from the removal valve. For reasons set forth above with respect to Claim 1, Applicant respectfully submits that neither Vanzo nor Billings et al. teach or suggest the method for generating electricity as claimed in Claim 16 as amended. Applicant respectfully submits that, at best, if Vanzo and Billings et al. were combined, the storage tank taught by Vanzo would include a pressure relief valve taught by Billings et al to release hydrogen to the atmosphere. Therefore, applicants submit that Claim 16 patentably defines over Vanzo in view of Billings et al. Accordingly, reconsideration and allowance of Claim 16 is respectfully requested.

For the same reasons set forth above with respect to Claim 16, Applicant respectfully submits that the rejections of Claims 17, 22, 29 and 36 are also improper. Therefore, applicants submit that Claims 17, 22, 29 and 36 are patentably defined over Vanzo in view of Billings et al. Accordingly, reconsideration and allowance of Claims 17, 22, 29 and 36 is respectfully requested.

Claims 18-19, 30-31, 37-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 4,253,428 to Billings et al. in further view of U.S. Patent 5,375,580 to Stolz et al.

For the same reasons set forth above with respect to Claim 16, Applicant respectfully submits that the rejections of Claims 18-19, 30-31, 37-38 which depend either directly or indirectly from Independent Claims 16, 29 and 36 are also improper. Applicant respectfully submits that neither Vanzo, Billings et al., nor Stolz et al. teach or suggest the method for generating electricity as claimed in Claim 16 as amended. Applicant respectfully submits that, at best, if Vanzo, Billings et al., and Stolz et al. were combined, the internal combustion engine taught by Stolz et al. would be fueled by liquid hydrogen removed from a storage tank and vaporized into gas as taught by Vanzo. Therefore, applicants submit that Claims 18-19, 30-31, 37-38 are patentably defined over

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Vanzo in view of Billings et al in further view of Stolz et al. Accordingly, reconsideration and allowance of Claims 18-19, 30-31, 37-38 is respectfully requested.

Claims 20-21 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 4,253,428 to Billings et al. in further view of U.S. Patent 6,543,229 to Johansson.

For the same reasons set forth above with respect to Claim 16, Applicant respectfully submits that the rejections of Claims 20-21 and 28 which depend either directly or indirectly from Independent Claim 16 are also improper. Applicant respectfully submits that neither Vanzo, Billings et al., nor Johansson teach or suggest the method for generating electricity as claimed in Claim 16 as amended. Applicant respectfully submits that, at best, if Vanzo, Billings et al., and Johansson were combined, the Stirling engine taught by Johansson would be fueled by liquid hydrogen removed from a storage tank and vaporized into gas as taught by Vanzo. Therefore, applicants submit that Claims 20-21 and 28 are patentably defined over Vanzo in view of Billings et al in further view of Johansson. Accordingly, reconsideration and allowance of Claims 20-21 and 28 is respectfully requested.

Claims 23-24 and 32-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 4,253,428 to Billings et al. in further view of U.S. Patent 5,003,772 to Huber.

For the same reasons set forth above with respect to Claim 16, Applicant respectfully submits that the rejections of Claims 23-24 which depend either directly or indirectly from Independent Claim 16 are also improper. Applicant respectfully submits that neither Vanzo, Billings et al., nor Huber teach or suggest the method for generating electricity as claimed in Claim 16 as amended. Applicant respectfully submits that, at best, if Vanzo, Billings et al., and Huber were combined, the internal combustion engine taught by Billings et al. would be fueled by liquid hydrogen pumped by Huber and subsequently vaporized into a gas as taught by Vanzo. Therefore, applicants submit that Claims 23-24 are patentably defined over Vanzo in view of Billings et al in further view of Huber. Accordingly, reconsideration and allowance of Claims 23-24 is respectfully requested.

Independent Claim 32 as amended requires a liquid hydrogen outlet and a gas outlet distal from the liquid outlet. For reasons set forth above with respect to Claim 1, Applicant respectfully submits that neither Vanzo, Billings et al. nor Huber teach or suggest the method for generating electricity as claimed in amended Claim 32. Applicant respectfully submits that, at best, if Vanzo, Billings et al. and Huber were combined, the storage tank taught by Vanzo would include a pressure relief valve taught by Billings et al to release hydrogen to the atmosphere. The pump of Huber would end up feeding liquid hydrogen to some type of engine, however as discussed above, the present Claims remove hydrogen gas from the storage tank for use by the hydrogen conversion device, not the liquid hydrogen shown in the prior art. Therefore, applicants submit that Claim 32 patentably defines over Vanzo in view of Billings et al. in further view of Huber. Accordingly, reconsideration and allowance of Claim 32 is respectfully requested.

For the same reasons set forth above with respect to Claim 32, Applicant respectfully submits that the rejections of Claims 33-35 which depend either directly or indirectly from Independent Claim 32 are also improper. Applicant respectfully submits that neither Vanzo, Billings et al., nor Huber teach or suggest the method for generating electricity as claimed in Claim 32 as amended. Applicant respectfully submits that, at best, if Vanzo, Billings et al., and Huber were combined, the turbine engine taught by

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Huber would be fueled by liquid hydrogen pumped by Huber and subsequently vaporized into a gas as taught by Vanzo. Therefore, applicants submit that Claims 33-35 are patentably defined over Vanzo in view of Billings et al in further view of Huber. Accordingly, reconsideration and allowance of Claims 33-35 is respectfully requested.

Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,910,962 to Vanzo in view of U.S. Patent 4,253,428 to Billings et al. in further view of U.S. Patent 5,003,772 to Huber in further view of Stoltz et al.

For the same reasons set forth above with respect to Claim 32, Applicant respectfully submits that the rejections of Claim 33 which depends directly from Independent Claim 32 is also improper. Applicant respectfully submits that neither Vanzo, Billings et al., Huber, Stoltz et al. teach or suggest the method for generating electricity as claimed in Claim 33. Applicant respectfully submits that, at best, if Vanzo, Billings et al., and Huber were combined, the internal combustion engine taught by Stoltz et al. would be fueled by vaporized gas pumped by Huber and created from liquid hydrogen as taught by Vanzo. Therefore, applicants submit that Claim 33 is patentably defined over Vanzo in view of Billings et al in further view of Huber in further view of Stoltz et al. Accordingly, reconsideration and allowance of Claim 33 is respectfully requested.

For at least the foregoing reasons, Applicants respectfully request withdrawal of these rejections.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly reconsideration and allowance is requested.

Respectfully submitted,

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